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REMARKS

Claims 1-25 are currently pending in the subject application and are presently under consideration. A marked-up version of all pending claims is found at pages 2-5 of this Reply. Claims 1, 3, 5, 7, 8, 11, 13, 14, 16, 18, 21, and 22 have been amended herein. Claims 2, 6, 15, and 20 have been cancelled.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-4, 9, 11-17, and 24 Under 35 U.S.C. §102(a)

Claims 1-4, 9, 11-17 and 24 stand rejected under 35 U.S.C. §102(a) as being anticipated by Mancevski (U.S. Docu. 2002/0104963). This rejection should be withdrawn for at least the following reasons. Mancevski does not disclose each and every element set forth in the subject claims.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The present invention relates to defect detection, repair, and/or removal in a semiconductor substrate, and in particular to systems and methods that employ each of a measuring tip and a scribing tip and wherein substrates and/or defects are mapped into a grid pattern for removal and/or repair. Independent claim 1 has been amended to recite "a scanning probe microscope that has *a measuring tip and a scribing tip*; and a defect repair system that repairs defects *via application of a first voltage to the scribing tip and a second voltage to the substrate* in a substrate at a location determined by the scanning probe microscope; *wherein defect location(s) and the substrate itself are mapped into a grid, each portion of which corresponds to an XY position.*" Independent claims 13 and 14 have been amended to recite similar language. The amendments to the claims are

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supported by the specification; for example, "Controller 220...*maps substrate 240, or a portion thereof, into a grid wherein each portion of the grid corresponds to an XY position.*" (Page 7, lines 16-19.) Furthermore, "[w]hen defects are located, system 300 uses the defect map and data from the microscope measuring tip 316 to position the scribing tip 318 over the defect." (Page 9, lines 26-27.) "The electric field is applied by *biasing substrate 240 to a first voltage and tip 216 to a second voltage.*" (Page 8, lines 20-21.) Mancevski does not teach or suggest such aspects of the claimed invention.

Mancevski merely describes a system wherein an atomic force microscope (AFM) having a single tip is employed to both detect and repair defects. As stated by the Examiner, "Mancevski discloses the defect repair system *repairs defects using the detection tip 202...*" Nowhere in the Examiner's cited sections or otherwise does Mancevski disclose separate measuring and scribing tips or applying a first biasing voltage to a scribing tip and a second biasing voltage to a substrate. Furthermore, Mancevski fails to disclose mapping a substrate in a grid pattern and/or mapping defect locations thereon.

In view of the above, it is readily apparent that Mancevski does not anticipate or make obvious independent claims 1, 13, and 14 (and claims 3-5, 7-12, 16-19, and 21-25, which depend respectively there from.) Therefore, this rejection should be withdrawn.

## II. Rejection of Claims 6-7, 10, 20-21, 23 and 25 Under 35 U.S.C. § 103(a)

Claims 6-7, 10, 20-21, 23 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mancevski and Yedur *et al.* (U.S. 6,197,455). This rejection should be withdrawn for at least the following reasons. Neither Mancevski nor Yedur *et al.*, alone or in combination, teach or suggest each and every limitation of the subject claims.

To reject claims in an application under § 103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or

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references when combined) must teach or suggest all the claim limitations. See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As stated above, Mancevski does not teach or suggest employing both a measuring tip and a scribing tip, as set forth in independent claims 1 and 14. Yedur *et al.* fails to overcome the deficiencies of Mancevski with respect to these claims. Like Mancevski, Yedur *et al.* merely describes a system wherein a *single tip* is employed for defect measurement and removal.

Furthermore, Yedur *et al.* does not teach or suggest applying a bias voltage to *both* the substrate and the tip used for defect removal, but rather merely discusses the application of "either a low bias voltage or no bias voltage...to the tip 95 [only] so as to avoid accidentally depositing material on the film 20." (Column 6, lines 36-38.) Furthermore, the Examiner's cited section states: "Oxidation is caused to occur *via* applying an appropriate voltage to the tip 95... at the time a deposition is desired." (Column 6, lines 56-58.) This description does not contemplate applying biasing voltages to both the tip and the substrate to *oxidize a defect away*, but rather is merely offered to distinguish the voltage level applied to the tip 95 during defect removal from the voltage level applied thereto during deposition of material.

Therefore, it is submitted that the combination of Mancevski and Yedure *et al.* does not make obvious applicants' invention as recited in the subject claims. This rejection should be withdrawn.

### **III. Rejection of Claims 5 and 18-19 Under 35 U.S.C. § 103(a)**

Claims 5 and 18-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mancevski and Elings *et al.* (U.S. 5,866,807). This rejection should be withdrawn for at least the following reasons. Neither Mancevski nor Elings *et al.*, alone or in combination, teach or suggest each and every limitation of the subject claims.

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Mancevski fails to teach or suggest employing separate measuring and scribing tips, and/or applying biasing voltages to both a scribing tip and a substrate, as set forth in independent claims 1 and 14. Elings *et al.* fails to overcome such deficiencies of Mancevski. Specifically, Elings *et al.* does not teach or suggest utilizing both a scribing tip and a measuring tip. Moreover, Elings fails even to mention applying a biasing voltage to each of a scribing tip and a substrate.

Therefore, it is respectfully requested that the rejection of claims 5, 18, and 19 (which depend respectively from independent claims 1 and 14) be withdrawn.

**IV. Rejection of Claims 8, 10, 22 and 25 Under 35 U.S.C. § 103(a)**

Claims 5 and 18-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mancevski and Li *et al.* (U.S. 4,896,044). This rejection should be withdrawn for at least the following reasons. Neither Mancevski nor Li *et al.*, alone or in combination, teach or suggest each and every limitation of the subject claims.

Mancevski does not teach or suggest applying a voltage to both a scribing tip and a substrate. Additionally, Mancevski fails to teach or suggest a measuring tip separate and distinct from a scribing tip, as set forth in independent claims 1 and 14. Li *et al.* fails to cure the above-mentioned deficiencies of Mancevski with respect to the subject claims, but rather also merely describes a applying a voltage *only to a single tip* (e.g. not a substrate).

In view of the foregoing, this rejection should be withdrawn.

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CONCLUSION

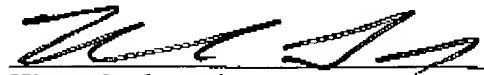
The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

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